

**REMARKS**

The examiner asserted section 102 and 103 rejections based on Mills. In particular, the Examiner stated, "The Mills curing light may be operated in pulsed mode (see page 16). For LEDs to pulsed, it is inherent that they be operated with pulsed current." Applicant strongly disagrees with the Examiner's position for several reasons: (1) Applicant is pulsing the ELECTRICAL INPUT to the LED's to achieve a higher intensity output. Mills does not disclose using a pulsed electrical input to LED's to achieve a higher intensity output. (2) It is NOT inherent that LED's would need a pulsed input to achieve a pulsed output. Pulsed light output can be achieved through the use of mirrors and shutters, and in the prior art that was typically the implementation technique. (3) Applicant is NOT claiming pulsed light output. Applicant has amended the claims to clarify this. Therefore Applicant requests withdrawal of any rejection based on Mills.

With regard to claims 7, 11, 15 and 19, the Examiner states that "Mills indicates that the light may be in a 'modulated mode' (page 16) which seems to suggest pulsed continuous light." This is a non-sequitur because continuous light is continuous (uninterrupted), while pulsed light is by definition not continuous. There is no such thing as pulsed continuous light, and Applicant has not claimed pulsed continuous light. Applicant has claimed "powering said LED chip with a pulsed current input at power level I in alternating periods of generally constant intensity current input to the chip followed by periods of rest with no current input in order to minimize heat effect on light output from the chip". It is doubtful that Mills even knew what "heat effect" was or that heat buildup in a chip decreases light output. Applicant has invented a solution to decreased light output due to heat effect by pulsing the electrical input to the chip.

Applicant also wishes to point out that pulsed electrical input to the chip does not necessarily mean that the light output will be pulsed. If the pulses of electrical input are not of very low frequency, then the chip will never stop emitting light, and the light output will be continuous (NOT pulsed). Therefore it is false to assume that discontinuous electrical input will result in pulsed electrical output. Applicant pulses electrical input to the chip to reduce heat effect and to improve intensity of light output. Applicant is not claiming to have invented pulsed light output.

None of the prior art recites the following elements found in Applicant's claims:

powering said LED chip with a pulsed current input at power level I in alternating periods of generally constant intensity current input to the chip followed by periods of rest with no current input in order to minimize heat effect on light output from the chip while maintaining non-pulsed light output from said LED chip,..

wherein said light output average power level is greater than the light output power level that would result from powering said chip a continuous current input at level I instead of pulsed current input due to minimization of heat effect on said chip.

Applicant believes these limitations render the claims patentable.

Additionally none of the prior art recites the following limitation of claims 5, 12 and 18:

wherein said LED chip is geometrically oriented with respect to said elongate heat sink longitudinal axis so that light emitted directly forward from the front of said LED chip travels in a direction that is at an angle of from about 30 degrees to about 150 degrees with respect to said longitudinal axis.

This limitation also renders the claims patentable.

Applicant has followed the Examiner's claim renumbering.

A terminal disclaimer is enclosed to address the double patenting rejection.

The application is believed to be in condition for allowance. If any other fees are due, those fees should be charged to deposit account no. 50-0581.

Respectfully submitted this 3<sup>rd</sup> day of March, 2005.



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